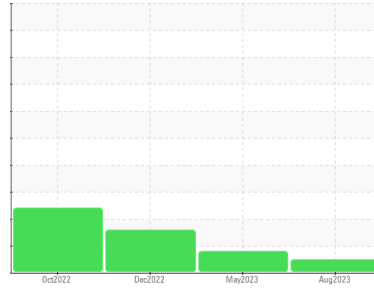




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
TIMM 2 A BARREL

Component
Gearbox

Fluid
SHELL OMALA 68 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Wear

All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system.

Contaminants

There is no indication of any contamination in the oil.

Oil Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		CB0031435	CB0031110	CB0031216
Sample Date	Client Info		04 Aug 2023	13 May 2023	28 Dec 2022
Machine Age	hrs	Client Info	0	0	0
Oil Age	hrs	Client Info	0	0	0
Oil Changed	Client Info		Changed	Changed	Changed
Sample Status			NORMAL	ABNORMAL	MARGINAL

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*		13	17	22
Iron	ppm	ASTM D5185(m) >200	153	▲ 219	▲ 199
Chromium	ppm	ASTM D5185(m) >15	4	4	3
Nickel	ppm	ASTM D5185(m) >15	<1	<1	<1
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m)	0	0	0
Aluminum	ppm	ASTM D5185(m) >25	<1	<1	<1
Lead	ppm	ASTM D5185(m) >100	0	0	<1
Copper	ppm	ASTM D5185(m) >200	<1	1	<1
Tin	ppm	ASTM D5185(m) >25	0	0	0
Antimony	ppm	ASTM D5185(m) >5	0	0	<1
Vanadium	ppm	ASTM D5185(m)	0	0	0
Beryllium	ppm	ASTM D5185(m)	0	0	0
Cadmium	ppm	ASTM D5185(m)	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	<1	2	2
Barium	ppm	ASTM D5185(m)	0	0	0
Molybdenum	ppm	ASTM D5185(m)	0	0	0
Manganese	ppm	ASTM D5185(m)	1	2	2
Magnesium	ppm	ASTM D5185(m)	0	<1	<1
Calcium	ppm	ASTM D5185(m)	2	0	0
Phosphorus	ppm	ASTM D5185(m)	320	330	320
Zinc	ppm	ASTM D5185(m)	16	5	5
Sulfur	ppm	ASTM D5185(m)	7882	7970	7579
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

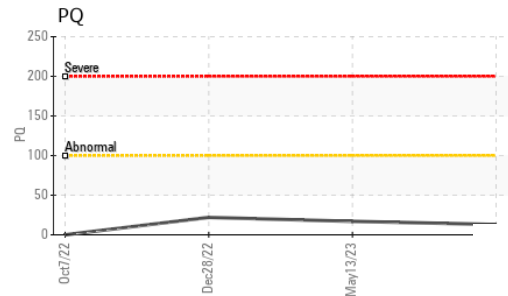
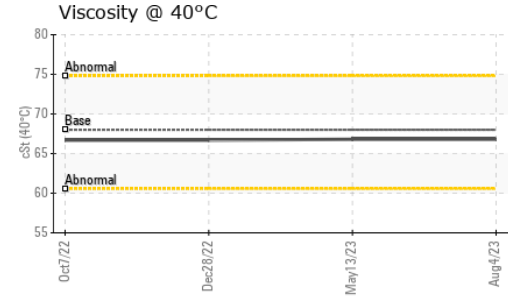
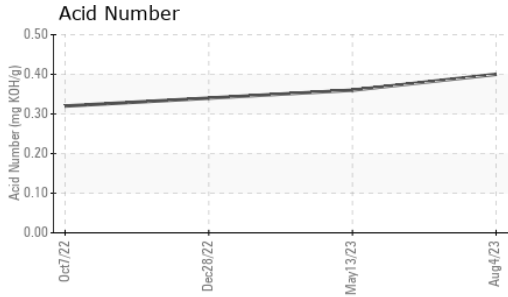
CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >50	2	2	2
Sodium	ppm	ASTM D5185(m)	1	<1	<1
Potassium	ppm	ASTM D5185(m) >20	<1	<1	0

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.40	0.36	0.34

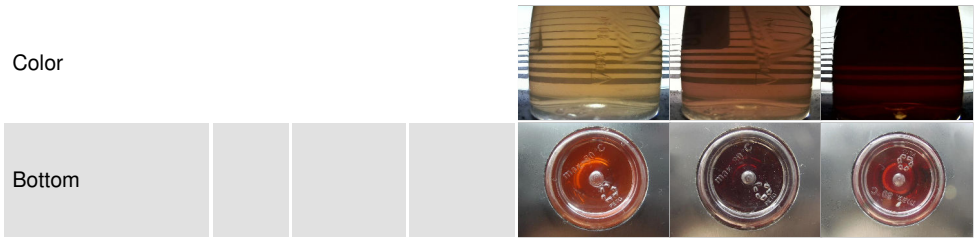
OIL ANALYSIS REPORT



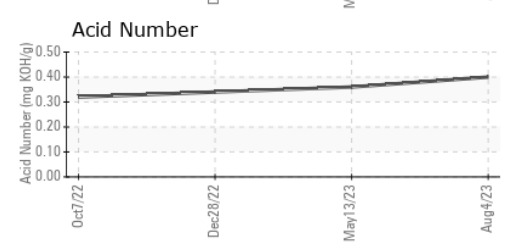
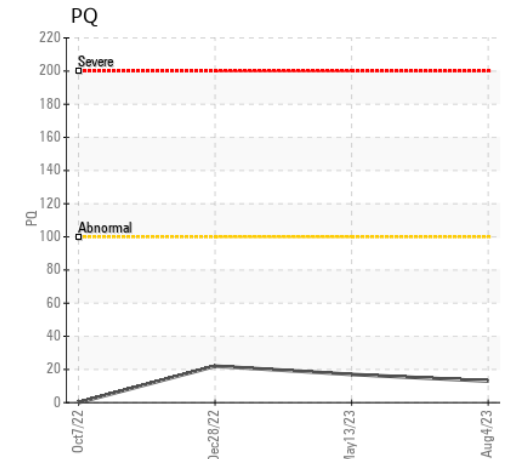
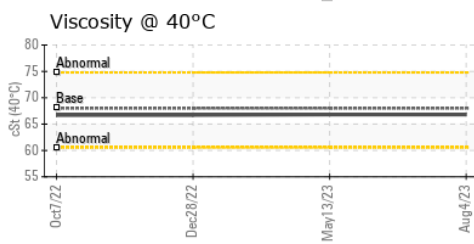
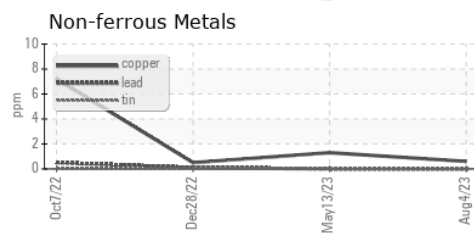
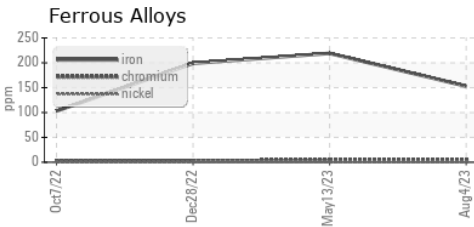
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	VLITE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	68.0	66.8	66.7

SAMPLE IMAGES	method	limit/base	current	history1	history2
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GRAPHS



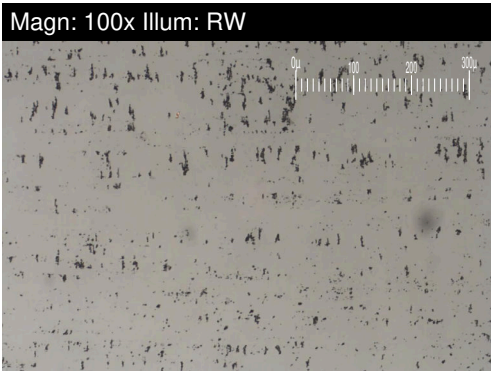
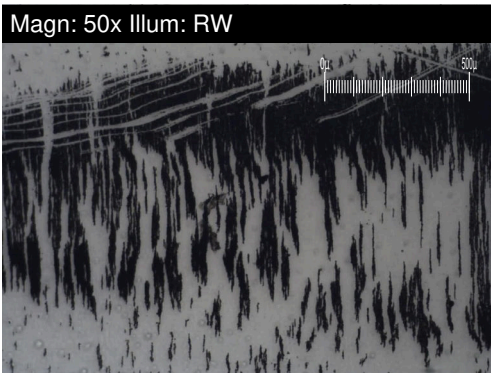
Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : CB0031435
Lab Number : 02579212
Unique Number : 5632272
Test Package : IND 3

TOYOTA MOTOR MANUFACT.
 1055 FOUNTAIN STREET N.
 CAMBRIDGE, ON
 CA N3H 5K2
 Contact: mike clappison
 mike.clappison@toyota.com
 T: (519)212-5023
 F: (519)653-9638

To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.

FERROGRAPHY REPORT

Machine Id
TIMM 2 A BARREL
Component
Gearbox
Fluid
SHELL OMALA 68 (--- GAL)



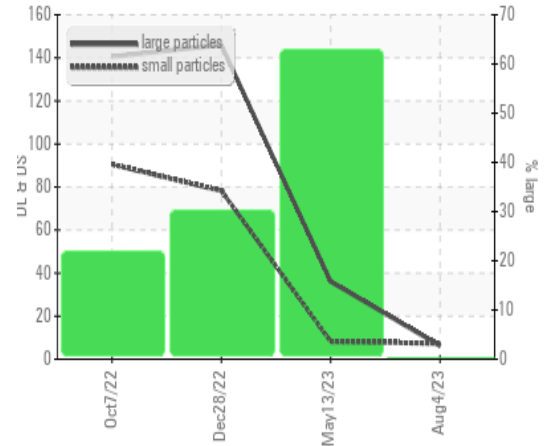
DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		6.2	36.1	146.0
Small Particles		DR-Ferr*		7.3	8.2	78.2
Total Particles		DR-Ferr*	>---	13.5	44.3	224.2
Large Particles Percentage	%	DR-Ferr*		0	63	30.2
Severity Index		DR-Ferr*		7	1007	9899

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		6	5	8
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		3	3	4
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*				
Ferrous Black Oxides	Scale 0-10	ASTM D7684*				
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*		1	1	1
Ferrous Other	Scale 0-10	ASTM D7684*				
Nonferrous Rubbing	Scale 0-10	ASTM D7684*				
Nonferrous Sliding	Scale 0-10	ASTM D7684*				
Nonferrous Cutting	Scale 0-10	ASTM D7684*				
Nonferrous Rolling	Scale 0-10	ASTM D7684*				
Nonferrous Other	Scale 0-10	ASTM D7684*				
Carbonaceous Material	Scale 0-10	ASTM D7684*				
Lubricant Degradation	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*		1	1	1
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		2	2	2

WEAR

All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system.

DR Ferrography



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